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I. COMMERCIAL VEGETABLES

A. Florida Strawberry Leaf and Petiole Sap Analysis.

For the past two seasons, Earl Albregts and I have been studying N and K requirements of drip-irrigated strawberries. We have conducted numerous leaf and petiole nutrient analyses, including K and nitrate-N analyses of fresh petiole sap. Strawberry yield in both seasons was only moderately responsive to N fertilization above 0.25 lb N per acre per day. Only during the heavy fruiting period of March did yields respond to up to 0.75 lb N per acre per day.

Soils used for these studies had Mehlich-1 potassium in the low (1991) and medium (1992) categories. Strawberry yield was generally maximized at 0.25 lb K per acre per day. Only in 1991 in March did yields respond positively to more than 0.25 lb (up to 0.5 lb) K per acre per day. Excessive K appeared to reduce strawberry fruit size.

Nutrient management is important for strawberries, not only because it saves money, but reducing excessive fertilization can result in a better yielding crop with better quality fruit. In addition, optimum fertilization helps in the overall management of the strawberry plant. Reduced nitrogen helps minimize vegetative growth which can help maximize pesticide coverage of the plant. Harvesters are less likely to miss fruits hidden by dense foliage.

There are many benefits to improved fertilization management. The guidelines are provided below for N and K management for drip-irrigated strawberries. The petiole values are provided for a trial basis and can be used to help guide adjustments being made in a fertilization program.

FLORIDA STRAWBERRY LEAF AND PETIOLE SAP ANALYSIS

WHOLE LEAF

<table>
<thead>
<tr>
<th>Growth stage</th>
<th>N</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Flowers</td>
<td>3.0-4.0</td>
<td>2.5-3.0</td>
</tr>
<tr>
<td>Initial Harvest</td>
<td>3.0-3.5</td>
<td>2.5-3.0</td>
</tr>
<tr>
<td>Main Season</td>
<td>2.5-3.0</td>
<td>2.0-2.8</td>
</tr>
<tr>
<td>Late Season</td>
<td>2.5-3.0</td>
<td>1.5-2.5</td>
</tr>
</tbody>
</table>

PETIOLE SAP (FOR TRIAL)

<table>
<thead>
<tr>
<th>Month</th>
<th>NO₃-N (ppm)</th>
<th>K (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>November</td>
<td>800-900</td>
<td>3000-3500</td>
</tr>
<tr>
<td>December</td>
<td>600-800</td>
<td>3000-3500</td>
</tr>
<tr>
<td>January</td>
<td>600-800</td>
<td>2500-3000</td>
</tr>
<tr>
<td>February</td>
<td>300-500</td>
<td>2000-2500</td>
</tr>
<tr>
<td>March</td>
<td>200-500</td>
<td>1800-2500</td>
</tr>
<tr>
<td>April</td>
<td>200-500</td>
<td>1500-2000</td>
</tr>
</tbody>
</table>
STRAWBERRY INJECTION SCHEDULE

<table>
<thead>
<tr>
<th>Stage</th>
<th>N and K₂O (lb/A/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>First 2 weeks</td>
<td>0.25</td>
</tr>
<tr>
<td>Second 2 weeks</td>
<td>0.25</td>
</tr>
<tr>
<td>Remaining 24 weeks</td>
<td>0.50 to 0.75 (0.75 in March)</td>
</tr>
</tbody>
</table>

(Hochmuth, Vegetarian 93-10)

B. Watermelon Variety Trial

Results, Spring 1993.

Standard watermelons weigh from 18 to 35 lbs and represent most of the commercial crop grown in Florida. Icebox watermelons weigh 6 to 12 lbs each and are grown on a small acreage. Seedless watermelons, weighing 12 to 18 lbs, also are grown in Florida on a limited scale. Florida produced 9 million cwt of watermelons of all types from 45,000 harvested acres in 1991-92 which provided an average yield of 200 cwt/acre. The average price was $6.95/cwt providing a crop value exceeding $62 million which accounted for 3.6% of the gross returns to the state’s vegetable growers.

Until recently, the Florida crop was about equally divided among open pollinated and hybrids of the Crimson Sweet, Charleston Gray, and Jubilee types. A noticeable decline in Charleston Gray and Jubilee production has been replaced largely by increased acreage of Allsweet and blocky Crimson Sweet types.

The purpose of this trial was to evaluate some of the recently introduced varieties, hybrids, and experimental lines of the Crimson Sweet and Allsweet types.

Twenty-five watermelon hybrids were direct-seeded on 16 February in holes punched in the polyethylene at 3 ft in-row spacing in a replicated, randomized, complete block design. Weed control in row middles was by cultivation and applications of paraquat. Pesticides were applied as needed for control of sweetpotato whitefly and gummy stem blight.

The watermelons were harvested on 7, 15 and 28 June. Marketable melons according to U.S. grades were separated from culls and counted and weighed individually. Soluble solids determinations were made on two to six fruit of each entry at each harvest.

Early yields, representing the first of three harvests, ranged from 0 for 'Summer Flavor 400' to 304 cwt/acre for 'Rebel Queen'. Fifteen other entries had early yields similar to those of 'Rebel Queen.' Average fruit weight of early-harvested watermelons ranged from 15.4 lb for XPH 6190 to 25.8 lb for 'StarBrite'. Five other entries had early fruit weight similar to that of 'StarBrite' while ten entries had early fruit weight similar to that of XPH 6190. Total yields, representing three harvests, ranged from 637 cwt/acre for XPH 6159 to 1026 cwt/acre for 'StarBrite'. Five other entries had total yields similar to 'StarBrite' while 17 other entries had total yields similar to those of XPH 6159. Average fruit weight for three harvests ranged from 17.2 lb for 'Royal Majesty' and XPH 6190 to 24.9 lb for 'Summer Flavor 610'. Soluble solids ranged from 11.1% for RXW 105 to 13.0% for 'Sultan'. Soluble solids in all entries
Watermelon yields and quality were considerably higher in this trial than those obtained in 1991 when gummy stem blight severely restricted yields and in 1992 when yields were restricted by a vine decline from an undetermined cause. Overall yields were three to five times the state average yield.


<table>
<thead>
<tr>
<th>Entry</th>
<th>Early Harvest¹</th>
<th>Total Harvest</th>
<th>Soluble Solids (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Weight (cwt/A)²</td>
<td>Average fruit wt (lb)</td>
<td>Total Harvest</td>
</tr>
<tr>
<td>StarBrite</td>
<td>123 a-d</td>
<td>25.8 a</td>
<td>1026 a</td>
</tr>
<tr>
<td>XPH 6144</td>
<td>187 a-d</td>
<td>20.9 b-e</td>
<td>992 ab</td>
</tr>
<tr>
<td>Mirage</td>
<td>48 c-d</td>
<td>24.0 a-c</td>
<td>953 a-c</td>
</tr>
<tr>
<td>Crimson Tide</td>
<td>72 b-d</td>
<td>17.8 e-g</td>
<td>932 a-d</td>
</tr>
<tr>
<td>Huck Finn</td>
<td>154 a-d</td>
<td>23.3 a-c</td>
<td>913 a-e</td>
</tr>
<tr>
<td>RXW 105</td>
<td>226 a-c</td>
<td>19.6 c-g</td>
<td>866 a-f</td>
</tr>
<tr>
<td>RXW 104</td>
<td>204 a-c</td>
<td>21.0 b-e</td>
<td>831 b-g</td>
</tr>
<tr>
<td>Summer Flavor 610</td>
<td>91 b-d</td>
<td>20.2 c-f</td>
<td>824 b-h</td>
</tr>
<tr>
<td>XPH 6194</td>
<td>175 a-d</td>
<td>22.6 a-d</td>
<td>815 b-h</td>
</tr>
<tr>
<td>Fiesta</td>
<td>209 a-c</td>
<td>16.8 e-g</td>
<td>797 c-h</td>
</tr>
<tr>
<td>Sangria</td>
<td>150 a-d</td>
<td>17.3 e-g</td>
<td>794 c-h</td>
</tr>
<tr>
<td>Summer Flavor 400</td>
<td>0 d</td>
<td>-</td>
<td>787 c-h</td>
</tr>
<tr>
<td>Royal Sweet</td>
<td>28 c-d</td>
<td>21.0 b-e</td>
<td>786 c-h</td>
</tr>
<tr>
<td>ASM 6564</td>
<td>135 a-d</td>
<td>17.0 e-g</td>
<td>758 d-h</td>
</tr>
<tr>
<td>Sultan</td>
<td>144 a-d</td>
<td>20.4 b-f</td>
<td>744 e-h</td>
</tr>
<tr>
<td>XPH 6190</td>
<td>261 ab</td>
<td>15.4 g</td>
<td>743 e-h</td>
</tr>
<tr>
<td>Royal Star</td>
<td>97 b-d</td>
<td>20.5 b-f</td>
<td>739 e-h</td>
</tr>
<tr>
<td>Royal Majesty</td>
<td>132 a-d</td>
<td>16.6 e-g</td>
<td>738 e-h</td>
</tr>
<tr>
<td>Regency</td>
<td>30 c-d</td>
<td>22.7 a-d</td>
<td>732 e-h</td>
</tr>
<tr>
<td>Summer Flavor 410</td>
<td>50 c-d</td>
<td>24.8 ab</td>
<td>699 f-h</td>
</tr>
<tr>
<td>RXW 106</td>
<td>192 a-d</td>
<td>17.9 e-g</td>
<td>682 f-h</td>
</tr>
<tr>
<td>XPH 6188</td>
<td>181 a-d</td>
<td>18.2 e-g</td>
<td>680 f-h</td>
</tr>
<tr>
<td>XPH 6189</td>
<td>213 a-c</td>
<td>20.2 c-f</td>
<td>669 gh</td>
</tr>
<tr>
<td>Rebel Queen</td>
<td>304 a</td>
<td>16.0 fg</td>
<td>639 h</td>
</tr>
<tr>
<td>XPH 6159</td>
<td>86 b-d</td>
<td>16.5 e-g</td>
<td>637 h</td>
</tr>
</tbody>
</table>

¹Early harvest represents the first of three harvests.
²Acre = 4840 lb.
³Mean separation in columns by Duncan's multiple range test, 5% level.

(Maynard, Vegetarian 93-10)
II. PESTICIDE UPDATE

A. New Prowl Supplemental Label on Direct-Seeded and Transplanted Dry Bulb Onions.

Supplemental labeling has just been received for the use of Prowl 3.3 EC in direct-seeded and transplanted dry bulb onions.

In mineral soils Prowl may be applied as a broadcast treatment when onions have 2 to 9 true leaves at a rate of 1.2 to 1.8 pts (.5 to .74 lbs ai).

In muck soils, Prowl may be applied sequentially as follows:

a. Preemergence through loop stage 2.4 to 4.8 pts/A (1.0 to 2 lb ai).

b. Early postemergence (2 to 6 true leaf stage) 3.6 to 4.8 pts/A (1.5 to 2 lb ai).

c. Late postemergence (6 to 9 true leaf stage) 3.6 to 4.8 pts/A (1.5 to 2 lb ai).

Do Not apply more than 14.4 pints per acre per growing season on muck soils.

Do Not apply preemergence through loop stage if heavy rains are expected or severe crop injury may result. If irrigating after application at preemergence through loop stage, Do Not irrigate in excess of 0.5 inch.

Do Not apply within 45 days of harvest. Follow all restrictions of rotational crops on the label.

(Stall, Vegetarian 10-93)

III. VEGETABLE GARDENING

A. Herb Directory.

There has been considerable media attention given lately to the use of savory and medicinal herbs. The focus has been in two areas: 1) possible unknown health hazards from the use of herbs for flavoring foods, and 2) the unknown risks from the widespread use of herbs for medicinal purposes.

One such herb that was used as an example is comfrey. The media has pinpointed it's use as a food item as being suspect from a health risk standpoint.

Most of the Extension Service's information we have available to hand out in the public interest deals with the production and use of herbs as food items. We can give little if any insight into the possible health risks from the use of these and especially the medicinal herbs. For these reasons, it might be advisable to refer your clientele of herb enthusiasts to other sources, of which there is a large number.

Therefore, I want to provide you the agent with the following information sources on the production, chemistry, and marketing of herbs, spices, and medicinal plants.

A. The Herb, Spice, and Medicinal Plant Digest. The Digest is published quarterly by the University of Massachusetts and is available by subscription and by direct purchase of back issues.

Subscription rates:
1 year @ $10.40
2 years @ $20.40
3 years @ $30.40
Back issues:
Vol. 1, No. 1. The propagation of selected herbs. ($2.90)
Vol. 1, No. 2. Introduction of Culinary Herbs for Commercial Production. ($2.90)
Vol. 2, No. 2. Introduction to Sweet Basil Cultivation. ($2.90)
Vol. 3, No. 1. Peppermint and Spearmint Production in the Midwest. ($2.90)
Vol. 3, No. 2. The Cultivation of Ginseng. ($2.90)
Vol. 4, No. 1. Successful Parsley Production Programs in New Jersey. ($2.90)
Vol. 4, No. 2. Post-Harvest Handling of Fresh Culinary Herbs. ($2.90)
Vol. 4, No. 3. Organic Fertilizers for Herbs. ($2.90)
Vol. 4, No. 4. Biochemicals from Tissue Cultures. ($2.90)
Vol. 5, No. 1. Pesticides for Use in Herbs, Spices and Medicinal Plants. ($2.90)
Vol. 5, No. 2. Legal Concerns in Owning an Herb Business. ($2.90)
Vol. 5, No. 3. The Process Budget: A Tool for Analyzing Your Production System. ($2.90)
Vol. 5, No. 4. Progress Towards Natural Herbicides from Plants. ($2.90)
Vol. 6, No. 1. Field Performance of American Basil Varieties. ($2.90)
Vol. 6, No. 2. Production of Fresh Culinary Herbs in Central America for Export. ($2.90)
Vol. 6, No. 3. An Introduction to the Chemistry of Herbs, Spices, and Medicinal Plants. ($2.90)
Vol. 6, No. 4. Catnip Production in North Carolina. ($2.90)
Vol. 7, No. 1. Preventing Diseases in Culinary Herbs. ($2.90)
Vol. 7, No. 2. The National Plant Germplasm System: Herb and Spice Resources. ($2.90)
Vol. 7, No. 4. Liming of Soils for Production of Herbs. ($2.90)
Vol. 8, No. 1. Angelica - Plant from the North. ($2.90)
Vol. 8, No. 2. New Markets for Herbs in France and Europe. ($2.90)
Vol. 8, No. 3. Mulches for Herbs. ($2.90)
Vol. 8, No. 4. Herbs and Volatile Oils. ($2.90)
Vol. 9, No. 1. Cultivation of Finnochio Fennel. ($2.90)
Vol. 9, No. 2. Photosynthesis and the Production of Herbs. ($2.90)
Vol. 9, No. 3. Harvesting and Cleaning Herb Seeds. ($2.90)
Vol. 9, No. 4. Chinese Medicinal Plants in the U.S. Nat'l Plant Germplasm System. ($2.90)
Vol. 10, No. 1. Chamomile: A Medicinal Plant. ($2.90)


Vol. 10, No. 3. Fertilizing Herbs. ($2.90)

Vol. 10, No. 4. Water and the Production of Herbs. ($2.90)

B. The International Directory of Specialists in Herbs, Spices, and Medicinal Plants.

The Directory lists the names, addresses, and interests (including plant species) of over 900 specialists from 85 countries. It was compiled by University of Massachusetts staff from mailing lists, referrals, and literature references over the past three years, then verified via correspondence with each specialist. The cost of the Directory is $37.00, unless you are also listed in the Directory. If you are a participant, your cost is $22.00.

Prepared by Extension Vegetable Crops Specialists

Dr. D.J. Cantliffe
Chairman

Dr. G.J. Hochmuth
Professor

Dr. D.N. Maynard
Professor

Dr. S.M. Olson
Assoc. Professor

Dr. S.A. Sargent
Assoc. Professor

Dr. W.M. Stall
Professor

Dr. C. S. Vavrina
Asst. Professor

Dr. J. M. White
Assoc. Professor

To Order:

To order any of the three items described above, indicate the item(s) you desire, your name and address, and make your check payable to the University of Massachusetts. Mail to the Department of Plant and Soil Sciences, University of Massachusetts, Amherst, MA 01003.

(Summary of prices: Digest - one year ($10.40); Digest-Back issues ($2.90 per copy); Directory - nonmember ($37.00); Directory - member ($22.00).

(Stephens, Vegetarian 93-10)